

Message Text

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APPROVED BY OES/NET/EIC: D B HOYLE
DOE/IA: R SLAWSON (INFO)
ACDA/NX: R WILLIAMSON
DOE/IA: S CEJA (INFO)
EUR/RPE: W SALISBURY (INFO)
PM/NPP: G OPLINGER (INFO)
EA: F BENNETT (INFO)
EUR/WE: A HUGHES
EA/J: D BROWN (INFO)

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TAGS:ENRG, PARM, USEC, IAEA

SUBJECT: U.S. CRITERIA AND JUSTIFICATION FOR APPROVING
EXPORTS OF HIGHLY ENRICHED URANIUM (HEU)

REF: 77 STATE 283271

THE FOLLOWING TEXT IS A REPEAT OF STATE 79409 DATED
MARCH 28, 1978, WHICH WAS SENT FOR ACTION TO THE FOLLOWING
POSTS: BRUSSELS, TOKYO, STOCKHOLM, BUCHAREST; AND INFO
TO: BONN, LONDON, PARIS, THE HAGUE, COPENHAGEN, AND
VIENNA.

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BEGIN TEXT:

1. REFTEL PROVIDED INFORMATION FOR APPROPRIATE HOST
GOVERNMENT OFFICIALS ON REVISED U.S. POLICY GOVERNING
EXPORTS OF HIGHLY ENRICHED URANIUM (HEU). IN ADDITION,
REFTEL PROVIDED A CHECKLIST OF THE KIND OF INFORMATION
REQUIRED IN CONNECTION WITH EACH REQUEST FOR HEU SUBMITTED
AFTER NOVEMBER 30, 1977, TO BE USED IN FUELING NUCLEAR
REACTORS. AS POSTS AWARE, THE INITIAL REACTION FROM
VARIOUS HOST COUNTRY OFFICIALS HAS BEEN GENERALLY NEGATIVE,

EVEN FROM SOME EURATOM COUNTRIES WHICH NORMALLY SUPPORT U.S. NON-PROLIFERATION POLICIES. HOWEVER, WE BELIEVE THAT SUCH REACTIONS WERE, AT LEAST IN PART, DUE TO SOME MISUNDERSTANDINGS OF THE INTENT OF THE REVISED POLICY, WHICH -- IN BRIEF -- PROVIDES THAT WE WILL MEET EXISTING SUPPLY COMMITMENTS WHILE WORKING TO (A) REDUCE HEU INVENTORIES ABROAD AND (B) IDENTIFY FACILITIES FOR WHICH CONVERSION TO THE USE OF LOW ENRICHED URANIUM (LEU) IS TECHNICALLY AND ECONOMICALLY FEASIBLE, AND ENCOURAGING HEU RECIPIENTS TO UNDERTAKE CONVERSION IN SUCH CASES. THE POLICY ALSO REQUIRES PRESIDENTIAL REVIEW AND APPROVAL FOR ANY EXPORT OR

RETRANSFER REQUEST FOR HEU CONTAINING OVER 15 KILOGRAMS OF U-235. IN THIS REGARD, THE PRESIDENT RECENTLY APPROVED A SECOND BATCH OF HEU EXPORT REQUESTS, MOST OF WHICH INVOLVED EUROPEAN COMMUNITY MEMBER STATES, AND THESE APPROVED REQUESTS HAVE BEEN TRANSMITTED TO THE NUCLEAR REGULATORY COMMISSION (NRC) WITH AN EXECUTIVE BRANCH RECOMMENDATION FOR GRANTING THE NECESSARY EXPORT LICENSES.

2. WE NOW PLAN TO FORWARD FUTURE HEU EXPORT REQUESTS, FOR LIMITED OFFICIAL USE
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WHICH THERE IS ADEQUATE TECHNICAL AND ECONOMIC JUSTIFICATION, FOR PRESIDENTIAL REVIEW AS SOON AS THEY CAN BE PROCESSED. OUR INTENT IS TO ASSURE THAT REQUESTS FOR HEU FOR USE IN THOSE APPLICATIONS FOR WHICH CONVERSION TO USE OF LOW-ENRICHED URANIUM IS NOT PRACTICABLE WILL BE APPROVED ON A TIMELY BASIS; HOPEFULLY, WITHIN 9 - 12 MONTHS FROM THE DATE OF THE ORIGINAL REQUESTS. TO ASSURE THIS, HOWEVER, WE WILL NEED TO RECEIVE FROM HEU REQUESTORS INFORMATION OF THE TYPE OUTLINED IN REFTEL IN AN EXPEDITIOUS MANNER. THIS NEED FOR INFORMATION IS PARTICULARLY ACUTE IN CONNECTION WITH THOSE REACTORS REQUIRING ADDITIONAL HEU PRIOR TO THE END OF CY 1978, BUT FOR WHICH EXPORT LICENSE APPLICATIONS WERE NOT SUBMITTED TO THE NRC PRIOR TO NOVEMBER 30, 1977, AT WHICH TIME WE MADE KNOWN THE DETAILS OF OUR MORE STRINGENT HEU REVIEW PROCEDURE.

3. ACTION POSTS ARE REQUESTED: TO COMMUNICATE OUR URGENT NEED FOR INFORMATION AS PER PARA 2 ABOVE TO APPROPRIATE OFFICIALS IN EC AND HOST GOVERNMENTS; IN SO DOING, POSTS SHOULD PROVIDE VERBATIM TEXT OF THE MODIFIED CHECKLIST OUTLINED IN PARA 4 BELOW. THIS MODIFIED CHECKLIST, WHILE REQUESTING THE SAME BASIC INFORMATION AS CHECKLIST CONTAINED IN REFTEL, HAS BEEN DESIGNED TO ALLOW THE HEU REQUESTOR GREATER FLEXIBILITY IN RESPONDING (OR ELECTING NOT TO RESPOND) TO CERTAIN QUESTIONS (PARA E), THE ANSWER TO WHICH, WHILE REQUIRING SUBSTANTIAL STUDY AND EFFORT ON THE PART OF REQUESTOR, ARE NOT ESSENTIAL TO THE

U.S. BEING ABLE TO MAKE ITS OWN ASSESSMENT OF THE ECONOMIC AND TECHNICAL NEED FOR THE CONTINUED SUPPLY OF HEU FOR ANY PARTICULAR FACILITY.

4. FOLLOWING IS MODIFIED HEU CHECKLIST OF INFORMATION REQUIRED IN CONNECTION WITH REQUESTS TO THE U.S. FOR EXPORT OF HIGHLY ENRICHED URANIUM TO BE USED IN FUELING NUCLEAR REACTORS. TO THE EXTENT REACTOR AND FUEL DESIGN INFORMATION REQUIRED IS AVAILABLE AND CURRENT IN PUBLISHED LIMITED OFFICIAL USE
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FORM (E.G., IAEA DIRECTORY OF NUCLEAR REACTORS), IT MAY BE SO STATED WITH AN IDENTIFICATION OF SOURCE(S), AND ONLY INFORMATION NOT THUS AVAILABLE SHOULD BE PROVIDED. ANY INFORMATION WHICH IS DEEMED TO BE PROPRIETARY OR SENSITIVE SHOULD BE SO IDENTIFIED AND IT WILL BE AFFORDED THE MAXIMUM PROTECTION ALLOWED BY LAW:

A. ANTICIPATED REQUEST FOR HIGHLY ENRICHED URANIUM:
KILOGRAMS (KGS) OF URANIUM (U) AND PERCENT OF CONTAINED U-235 TO BE REQUESTED FOR USE IN OR IN SUPPORT OF THE REACTOR.

INDICATE THE PERCENTAGE OF ABOVE QUANTITY OF U WHICH WILL BE FOR WORKING STOCK AND WHETHER THIS WORKING STOCK WILL BE RETAINED BY FABRICATOR/PROCESSOR.

B. CURRENT FUEL INVENTORY STATUS AND NEEDS:

-- 1) CURRENT INVENTORY STATUS

QUANTITY, IN KGS U AND PERCENT U-235 CONTAINED IN NEW FUEL IN THE FORM OF UF₆ AND/OR MATERIAL CURRENTLY IN PROCESS; AVAILABILITY DATE; FUEL SOURCE.

QUANTITY, IN KGS U, PHYSICAL AND CHEMICAL FORM, AND PERCENT U-235 CURRENTLY CONTAINED IN SCRAP MATERIAL (BOTH READILY RECOVERABLE AND NOT READILY RECOVERABLE).

QUANTITY, IN KGS, AND PERCENT U-235 CONTAINED IN NEW FUEL CURRENTLY ON HAND; FUEL SOURCE.

QUANTITY, IN KGS U, AND PERCENT U-235 (AS INITIALLY LOADED) CURRENTLY CONTAINED IN FUEL IN-CORE; FUEL SOURCE.

ESTIMATED QUANTITY, IN KGS U, AND PERCENT U-235 CONTAINED IN SPENT FUEL CURRENTLY IN STORAGE; FUEL SOURCE.

-- 2) FUEL INVENTORY CONSIDERED NECESSARY TO ASSURE CONTINUITY OF REACTOR OPERATION.

NEW FUEL IN PROCESS

NEW FUEL ON HAND,

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FUEL IN-CORE.

C. BACKGROUND INFORMATION ON REACTOR AND FUEL DESIGN;

-- 1) DESCRIPTION OF THE CURRENT REACTOR DESIGN (INCLUDING CORE DIMENSIONS, GRID ARRANGEMENT, IN-CORE PHYSICS IN-CORE REFLECTORS, THERMAL HYDRAULICS, CONTROLS, MECHANICAL DESIGN, AND SUPPORTING FACILITIES) IN SUFFICIENT TECHNICAL DETAIL TO ALLOW AN ASSESSMENT OF THE FEASIBILITY OF LOWERING THE FUEL ENRICHMENT LEVELS, ASSOCIATED TECHNICAL AND ECONOMIC EFFECTS ON THE FACILITY AND EXPERIMENTS, AND OPTIONS AVAILABLE FOR MINIMIZING THESE EFFECTS.

-- 2) DESCRIPTION OF THE REACTOR FUEL ELEMENT DESIGN, INCLUDING DIMENSIONS OF PLATES AND ELEMENTS AND METHOD OF FABRICATION.

-- 3) DESCRIPTION OF THE IN-REACTOR FUEL CYCLE INCLUDING CRITICAL LOADING, OPERATING SCHEDULE, REFUELING SCHEDULE, ELEMENT ROTATION PATTERN, FUEL BURN-UP RANGE ACHIEVABLE BEFORE REPLACEMENT IS CONSIDERED NECESSARY, AND APPLICABLE LICENSE RESTRICTIONS.

-- 4) DESCRIPTION OF THE EXTRA-REACTOR FUEL CYCLE INCLUDING SOURCE OF FUEL, PROCUREMENT LEAD TIMES, DISPOSITION OF SPENT FUEL, REPROCESSING CONTRACTS, AND STORAGE ARRANGEMENTS.

-- 5) DESCRIPTION OF FINANCIAL CONSIDERATIONS THAT MIGHT HAVE A BEARING ON THE FEASIBILITY OF CONVERTING THE REACTOR FACILITY TO OPERATE ON URANIUM ENRICHED TO NOT MORE THAN 20 PERCENT U-235, INCLUDING (AMONG ANY OTHER PERTINENT FACTORS) INITIAL COSTS, ANNUAL OPERATING BUDGET AND FUEL COSTS.

D. CURRENT AND PLANNED REACTOR-USE PROGRAM:

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-- 1) DESCRIPTION OF CURRENT AND PLANNED REACTOR-USE PROGRAMS-
DISCUSS THE IMPORTANCE OF EACH PRINCIPAL PROGRAM SUBGROUPING.

-- 2) FOR EACH PRINCIPAL PROGRAM SUBGROUP IDENTIFIED IN 1, ABOVE, DESCRIBE:
REACTOR FACILITIES USED OR TO BE USED IN CONDUCT OF PROGRAM SUBGROUPS SUCH AS
IN-CORE SPACE, THERMAL COLUMN, BASE PORT, COLLIMATORS, ETC.
REQUIRED POWER LEVEL(S) REACTOR OPERATING SCHEDULE(S),
FLUX LEVELS AND ENERGY SPECTRUM.
REQUIRED IRRADIATION TIME(S).

E. IN ADDITION TO PROVIDING ABOVE REQUESTED INFORMATION

SO THAT THE U.S. MAY MAKE ITS ASSESSMENT OF THE ECONOMIC AND TECHNICAL NEED FOR THE CONTINUED SUPPLY OF HEU FOR USE IN FUELING THE REACTOR, WE WOULD WELCOME ANY STATEMENTS WHICH HEU REQUESTOR MIGHT WISH TO MAKE IN RESPONSE TO QUESTIONS SUCH AS THE FOLLOWING TO ASSURE U.S. CONSIDERATION OF ALL RELEVANT VIEWS IN MAKING THE ASSESSMENT.

-- 1) IS THE USE OF OTHER REACTOR FACILITIES WITHIN YOUR COUNTRY, OR IN OTHER COUNTRIES A VIABLE OPTION FOR THE PERFORMANCE OF ANY PART OF YOUR PLANNED PROGRAM?

-- 2) IF NO CHANGES IN THE REACTOR OR ITS FUEL ELEMENT DESIGN ARE UNDERTAKEN, WHAT WOULD BE THE PROGRAMMATIC AND ECONOMIC IMPACTS OF THE IMPOSITION OF A LIMIT OF 20 PERCENT (U-235) ON URANIUM ENRICHMENT?

-- 3) IF RESTRICTIONS ON REACTOR RESEARCH OR ISOTOPE PRODUCTION ACTIVITIES WERE TO BE REQUIRED BECAUSE OF AN LIMITED OFFICIAL USE
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ENRICHMENT LIMIT OF 20 PERCENT U-235, DESCRIBE THE SPECIFIC ACTIVITIES THAT WOULD BE SO RESTRICTED. ARE

ALTERNATIVE WAYS OPEN TO YOU TO PERFORM ANY SUCH RESTRICTED PROGRAMS?

-- 4) WOULD THE USE OF FUEL ELEMENTS WITH SIGNIFICANTLY HIGHER URANIUM LOADING PER ELEMENT BE A VIABLE OPTION FOR YOUR REACTOR TO PARTIALLY OR FULLY COMPENSATE FOR A URANIUM ENRICHMENT LIMIT OF 20 PERCENT U-235?

-- 5) DESCRIBE ANY MODIFICATIONS THAT WOULD BE NECESSARY IN YOUR REACTOR FOR IT TO OPERATE USING URANIUM ENRICHED TO NOT MORE THAN 20 PERCENT U-235. WHAT ECONOMIC AND PROGRAMMATIC IMPACTS WOULD SUCH MODIFICATIONS ENTAIL?

-- 6) COULD FUEL OR REACTOR MODIFICATIONS INDICATED AS FEASIBLE IN ANSWERS TO 4 AND 5 ABOVE BE EFFECTED ON A TIME SCHEDULE WHICH WOULD ALLOW YOU TO ACCEPT URANIUM CONTAINING NOT MORE THAN 20 PERCENT U-235 IN THE PRESENT CASE?

-- 7) HOW WOULD A LIMIT OF 30 - 40 PERCENT U-235, RATHER THAN 20 PERCENT U-235, AFFECT YOUR RESPONSES TO THE QUESTIONS RAISED IN 2 THROUGH 6 ABOVE? CHRISTOPHER

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